NUMBER SIXTEEN NOTES FROM THE SHOP TWO DOLLARS

Woodsmith™

SPECIAL ISSUE:

PROJECTS AND TECHNIQUES REQUESTED BY READERS

- T.V. TRAY TABLES
- CONTEMPORARY BLANKET CHEST
- PLUS . . . TECHNIQUES GALORE!

JOINERY: OPEN, MITERED MORTISE & TENON

Woodsmith

Number Sixteen **July, 1981**

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Sawdust

ABOUT THIS ISSUE

Every project and technique shown in this issue is the result of a letter from a subscriber. For that reason, this has been a very rewarding issue to work on. I hope we'll be able to keep this up and include at least one project or technique requested by a subscriber in every issue in the future.

As we were deciding what projects to include this time, I kept looking at several letters asking for plans for T.V. Tray Tables. To be honest, I had to force myself to go ahead and build these tables.

Most of the tray tables you see in stores are flimsy, cheap looking things. I just didn't want to build anything like that. I also thought this would be a project that we'd just knock together in no time. I was wrong.

The tray tables turned out to be quite an undertaking. Getting everything to slide and pivot smoothly, providing the necessary sturdiness, and getting it to look halfway decent was quite a challenge.

While we were at it, we decided to make four tables. All the time I kept thinking: What are we going to do with all these things when we're done? Well, each one has found a good home. I adopted one which sits next to my typewriter to collect paper. The prototype is in the shop, where it's become very useful. In fact, it might be worth building a table like this just for your shop. It's handy for collecting wood, tools, rulers, etc. And if you don't need it, it folds away flat.

CHANGES

Sometimes I get the feeling that the only thing that remains the same is change. With this issue of *Woodsmith* there are a number of changes I'd like to mention.

PAGES. Once again we've increased the number of pages in *Woodsmith*. We're up to 20 pages and still no advertising.

In past issues, we always seemed to be a page or two short of what we wanted to get in an issue. With the four extra pages I think we'll be in better shape . . . at least until we decide to go to 24 pages.

THE ENVELOPE. For sometime now we've included an envelope in each issue. Most of the time I think this was sort of an annoyance. It was handy if you wanted to order back issues, change your address, or renew your subscription. But those things didn't happen very often, so the envelope usually just got in the way.

It was also very expensive. Since we added four pages, we decided we had to drop the envelope.

SAWDUST. In the very first issue of *Woodsmith* there was the beginning of two regular columns: Sawdust and Talking Shop. Sawdust was supposed to be this column at the beginning of each issue where I would have the chance to ramble on. Talking Shop was intended to be an open forum for questions and comments.

By the second issue, Talking Shop was dropped, but the name was used for this column. Then, not too long ago, I received a letter from a reader suggesting that things should be changed back to the way they were in the first issue.

I agreed. In fact, Sawdust is a more appropriate name for this column. When we finish a project in the shop, all that's left is a pile of sawdust. When we finish an issue, all that's left is . . . Sawdust.

TALKING SHOP. I've included some thoughts about the Talking Shop column on page 19. Without repeating myself too much, I hope you'll find time to contribute to this page — whether it be in the form of a question, comment or suggestion. Your thoughts and comments are important. No, they're vital to the success of this column, and the future direction of *Woodsmith*. Besides, it's a chance to see your name in print. Fame.

PEOPLE. When you get down to it, *Woodsmith* isn't really a magazine. Underneath it all *Woodsmith* is people who's effort winds up being a magazine.

During the past few months we've added some new faces to the bunch, and we're loosing one. Linda Hill, our subscription manager, will be moving to Arizona with her husband and two children. Without Linda, *Woodsmith* would not exist. She almost single-handedly took care of the subscription end of this business. If you're receiving your copy of *Woodsmith*, it's because Linda took care of it (even if your name is misspelled). I'm sorry to see her go, but I wish her all the best.

In a way it took two people to replace Linda. Connie Lowe joined us last December. She takes care of all the money, answers the phone, and generally keeps me in line. If you ever have a reason to call us, and you hear a cheerful voice at the other end, that's Connie. (If you hear a voice that sounds confused and lost, that's me.)

Sandy Baum just joined us as our new subscription manager. Sandy will be taking care of just about everything concerned with your subscription. That includes an occasional argument with our computer, and trying to read your writing.

Late note: Ron Osgood just joined us a week ago. He'll be helping Ted with the art.

NEXT MAILING: September 1, 1981.

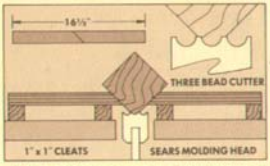
Tips & Techniques

BEAD CUTTING JIG

About a month before I received my copy of *Woodsmith* Number Fourteen, I decided to build a Butler's Tray Table. I was faced with the problem of cutting the bead on the outside edge of each leg.

My solution was a little different than the way you showed. I made a jig for a table saw which makes the bead cut in one pass.

To make the jig, first I bevel-ripped a piece of ¾" plywood down the center at 45°. (The plywood was 16½" wide and as long as my table saw.) To each half, I nailed a pair of 1" x 1" cleats to raise each side off the table's surface.



Both of these pieces were then clamped to the table, spacing them equal distance from a three bead cutter on a *Sears* molding head.

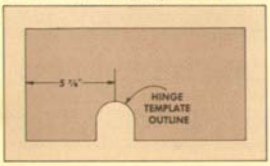
I inserted the leg between the two beveled edges and cut the beaded corner using only the center bead.

Grahm M. Petree
Rural Hall, North Carolina

BUTLER'S HINGE MORTISE

I have a suggestion for cutting the mortises for the Butler's Table hinge (mentioned in *Woodsmith* Number Fourteen). The initial mortise could easily be done with a router, using a template as a guide. (Cutting the notches for the spring and knuckle would still have to be done by hand, as you show.)

To make the routing template, mark the outline of the hinge on a piece of Masonite with the center of the hinge 5⅞" from the edge. (This is the distance from the edge you show on the long edge of the table.)



Then, using a compass, draw another line around the outline of the hinge. This second line is the actual template size. When drawing this line, the compass setting is determined by this formula:

Diameter of Template Bushing,
Minus,
Diameter of Router Bit,
Divided by 2.

Cut out the pattern on a jig saw and smooth the edges with a drum sander. Line up the edge of the template with the edge of the table and rout the mortise. It's best to do this on a piece of scrap. If the hinge is too loose, shim the edge of the template with some tape.

Allen R. Colley
Bradford, Pennsylvania

We received a number of letters from readers suggesting this type of template. In fact, when I was working on the Butler's Table, I made exactly the same template as described here, but I ran into a problem.

The hinges I used were hand-formed to the round end. I made a template that fit one hinge, only to discover later that the hinges varied in length (as much as ¼") and shape (each one was slightly different). So, I had to resort to routing each mortise individually for each hinge.

GROOVED DOWELS

Whenever I use dowels, I like to cut a groove in the side to let the excess glue escape. I do this on a band saw when the dowel is 6" or less in length.

To prevent injury, I have drilled an assortment of hole sizes in a piece of 2x4. The holes are not drilled completely through the wood to prevent the dowels from falling through. I insert the dowel in the proper hole, and push the assembly against the band saw blade. The groove can be cut without having my fingers come too close to the blade.

Ken Schauer
Odessa, Washington

DOWELS BY THE BUNDLE

Have you ever tried to cut 10 or 15 dowels ¾" long, all at once? Whenever I did this the dowels wound up all over the work table and floor, and every one had a ragged end.

I finally came up with a way to solve this problem. First I choose as many dowels as I need. Then I hold them tightly in one hand and wrap them with masking tape, the tighter the better. (I always use masking tape to wrap the bundle. It's like paper, and cuts well.)

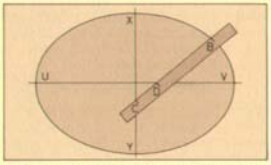
Next, I trim off the end of the bundle on a table saw or radial arm saw to make everything even. Now it's just a matter of slicing off sections to length I need. There's all the dowels I need, all neatly packaged.

H. L. Burgess
Phoenix, Arizona

ELIPSE DRAWN WITH TRAMMEL

In *Woodsmith* Number Fourteen you had an article on drawing an elipse. The method I use comes from a mechanical drawing book dated Feb. 4, 1901.

To draw an elipse, draw the major and minor axes UV and XY. Mark off length CB on a strip of paper (or wood). Distance CB is equal to one-half the major axis (UV) you want for the elipse. Mark off another measurement, DB, equal to one-half the minor axis (XY).



Place the paper in various positions, keeping Point D on the major axis and Point C on the minor axis at all times. Point B will mark a series of points along the perimeter of the elipse. Find as many points as necessary and sketch the curve.

L. E. (Duffy) Dodge
North Edgecomb, Maine

SEND IN YOUR IDEAS

We invite you to share your woodworking tips and techniques with other readers of *Woodsmith*. We will pay a minimum of $10 for a tip, and $15 or more for a special technique. All material submitted becomes the property of Woodsmith Publishing Co. Upon payment, you give *Woodsmith* the right to use the material in any manner for as long as we wish.

If your idea involves a drawing or photo to explain it, do your best and, if necessary, we'll make a new drawing, or build the project or jig and photograph it. (Any drawings or photos submitted cannot be returned.)

Send your ideas to: *Woodsmith*, Tips & Techniques, 2200 Grand Ave., Des Moines, Iowa 50312.

T.V. Tray Tables

FOLD 'EM UP AND STORE 'EM FLAT

"How about some plans for a T.V. tray." This seemed like a simple request, but I've been avoiding it for months. I just couldn't come to grips with building a typical T.V. tray table . . . they're usually rickety, flimsy things that fall over if you sneeze near them.

So, we set out to build some *sturdy* tray tables, and in the process, learned a lot about the function of sliding, pivoting "X" legs and how to prevent them from wagging around. The leg assemblies on these tables are remarkably sturdy. (Frankly, I was quite surprised.)

The design calls for folding "X" legs that scissor together so the tray top can drop down and the whole table can be stored flat. This was no easy task to design. Ted built a prototype that was changed several times before we could meet both criteria of sturdiness and ease of folding. (The prototype has so many holes and cobbled-together pieces that it looks like it was designed by a committee of politicians. But it is sturdy, and now has found a home in the shop where it collects all manner of tools and odds and ends.)

THE CUTTING DIAGRAM

Maybe I place too much importance on the Cutting Diagram, but in this case things worked out surprisingly well. All of the pieces for each tray table can be cut from two pieces of wood 15/16" (or ¾") thick by 3½" wide, and 6 feet long. We used oak.

In addition to the boards shown in the Cutting Diagram, you'll also need some ⅜" and ¾" dowels, and a piece of ¼" plywood for the tray. (Four plywood panels can be cut from a 2'x4' sheet of ¼" oak plywood . . . with no waste.)

Note: The notes that follow talk about cutting and assembling one tray table from the two 6' boards shown at the top of the Cutting Diagram. The two bottom boards shown in the Cutting Diagram are used only for the tray stand.

The first step is to rip two of the 6' oak boards into 1½"-wide strips. Then we cut off lengths for each of the pieces to rough length, leaving them about ½" long. (The measurements given in parentheses in the Materials List indicate the rough length we used for each piece.)

THE TRAY TOPS

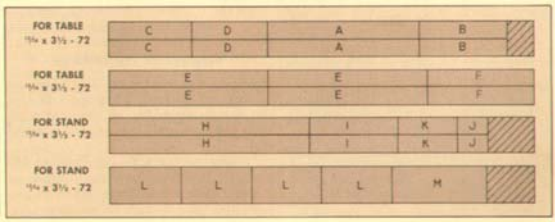
We started construction with the trays. Each tray is a frame and panel assembly joined with mitered slot mortise and tenon joints. This joint is nice for "framing" the plywood panel, and also allows you to cut a groove for the panel with relative ease.

THE TRAY FRAME. The finished dimensions of the frame pieces are shown in Fig. 1. The method we used to cut the joint is shown in more detail on page 16. But basically, we started by cutting a ¼" groove on the inside edge of all four pieces, Detail A. Then the ends of the two short pieces (end pieces) were cut off at 45°, leaving an outside length of 14½" (from point to point). A ¼"-wide slot mortise is then cut so it just meets the groove, Details B and D.

MATERIALS LIST

A Frame (Long)	15/16 x 1½ - 24½ (25)
B Frame (Short)	15/16 x 1½ - 14½ (15)
C Cleat	15/16 x 1½ - 13½ (14)
D Slide	15/16 x 1½ - 12½ (13)
E Legs	15/16 x 1½ - 26½ (27)
F Stretcher	15/16 x 1½ - 17⅛ (18)
G Plywood Tray	¼ x 12 - 21½
H Legs (Stand)	15/16 x 1½ - 33
I Stretchers (2)	15/16 x 1½ - 14½
J Arm (Short)	15/16 x 1½ - 10½
K Arm (Long)	15/16 x 1½ - 5
L Base (2 pcs.)	15/16 x 1½ - 12
M Handle	15/16 x 1½ - 14½

CUTTING DIAGRAM



Next the tenons are cut on the front and back pieces (the long pieces). The miter should be cut on this piece so the tenon extends about ¼" from the mitered edge, Detail D. (This extension is trimmed off after assembly of the frame.)

Before assembling the frame, we rounded over three of the edges, Detail A. (The fourth edge is left square.)

The frame can be dry assembled to check the fit of the joints, and take final measurements for the plywood panel. After the panel is cut to size, the frame can be glued up with the panel glued in place.

THE LEG SLIDE ASSEMBLIES

The tray top is joined to the legs with a slide assembly mounted underneath the tray. This assembly consists of two pieces.

THE CLEAT. The first piece is a cleat that's rabbeted to fit between the frame, Fig. 2. The depth of the rabbet will vary depending on the thickness of stock used for the frame and the placement of the groove. For us, this measurement was 5/16". But the rabbets should be cut to match the shoulder on the underside of the tray frame, leaving a 1" lip overlapping the frame.

SLIDE ASSEMBLY. The actual slide assembly is mounted to this cleat. The two slides at each end are mirror images of each other. (Things can get a little confusing with these pieces, so I marked an "X" on the outside face of each piece.)

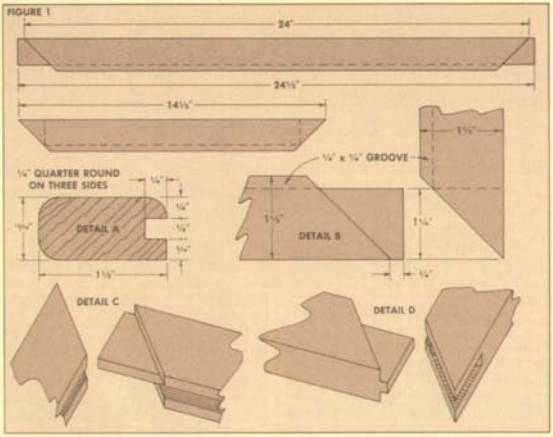
Looking at the "X" side, drill a 3/8" diameter hole on the left end of one piece (Fig. 3b), and a similar hole on the right end of the other piece (Fig. 3c). Both of these holes are stopped at 3/8" deep. (It's best to use a spur bit to drill these holes.)

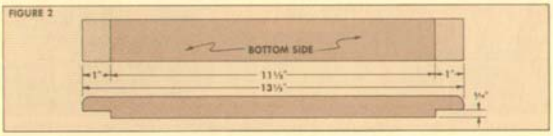
On the inside face of these two pieces (Fig. 3a, the side *without* the "X") a 3/8"-wide groove is routed, 5/16" deep. This can be done on a drill press with a routing collet and router bit, or on a router table. (A router with an edge guide can be used, but the piece has to be clamped to a bench, and the clamps will probably get in the way.)

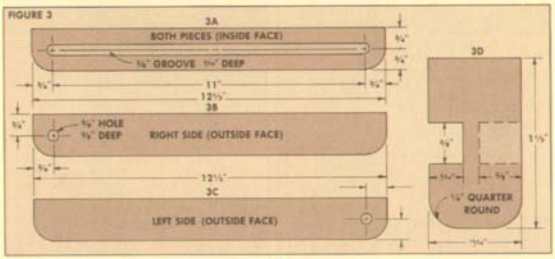
When routing this groove, the important thing is to make sure the routed groove ends at the same point as the hole drilled on the outside face (the "X" side). Otherwise, the tray will not privot down properly.

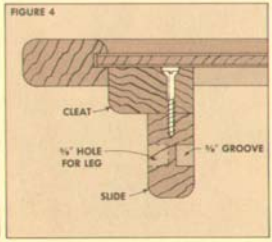
ROUNDING OVER. As shown in Figure 3, two corners of the slide are cut at a radius on a band saw. Then the bottom edges are rounded over with a ¼" quarter-round bit. Also, one edge of the cleat is rounded over as shown in Fig. 4.

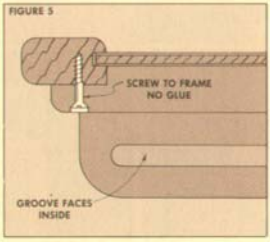
Finally, the cleat and the slide are glued and screwed together, Fig. 4. This entire assembly will be attached (later) to the bottom of the tray with screws only, Fig. 5. Don't use any glue. If something should break later, it's better to be able to take this assembly off.

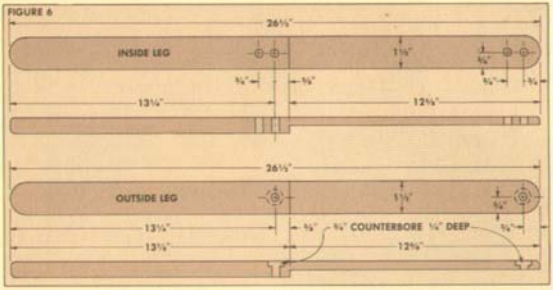


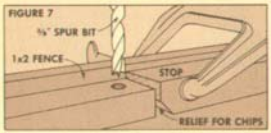


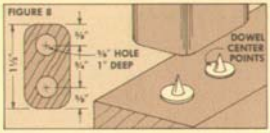


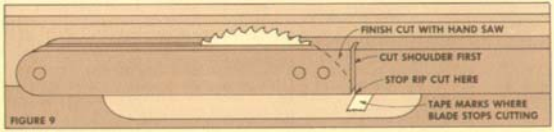


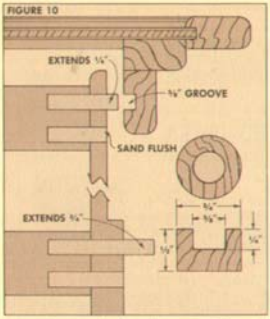


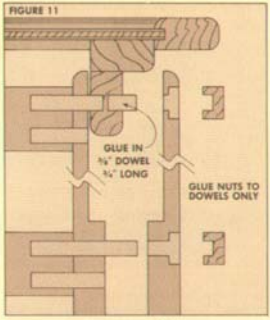


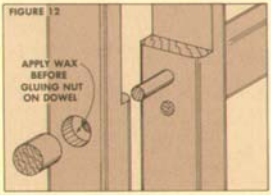


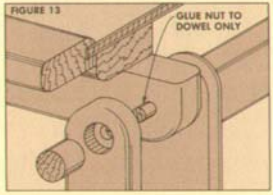












THE LEGS

Building the legs and getting them attached to the slide assemblies tends to get a bit complicated. The problem is that the legs must be assembled so they're sturdy, yet able to pivot and slide.

The first step, of course, is to cut all four legs to length. At each end of the table a pair of legs (an inside leg and an outside leg) is joined into to one "X" assembly. Then a series of holes is drilled to accept either a pivoting dowel or a fastening dowel.

DRILLING THE HOLES. Alignment of the holes in each leg is critical. Figure 7 shows the simple fixture we used to drill the holes in the same spot in each leg. This fixture is a length of wood (preferably ¾" plywood) with a 1x2 fence tacked to the back edge.

When drilling the holes, mark the location of one hole on one leg. Then clamp the fixture to a drill press table, and clamp the stop, as shown, so all the other legs can be drilled with no need for marking each leg.

This fixture works even when drilling the 1" counterbore holes in the outside leg, followed by the ⅜" through holes, because the *centers* of the holes are the same.

After the holes are drilled, go ahead and make the radius cuts on the corners of all four legs, followed by rounding over all edges with a router.

CUTTING THE RABBET. Now a long rabbet or half lap joint must be cut. The depth of this rabbet is exactly half the thickness of the slide assembly, in our case 5/16".

I cut this long rabbet by first making a cut at the shoulder line. Then I ripped (resawed) the rabbet up to the shoulder cut, Fig. 9. This cut must then be finished with a hand saw.

THE STRETCHERS. Holes must be drilled in the ends of the stretchers to align with the holes in the legs. To mark the holes for drilling, insert dowel center points in the holes in the legs, and press the end of the stretcher on the center points, Fig. 8. These holes are difficult to drill, but we managed to do it on a drill press by holding the stretchers in a vise.

Now the edges of the stretcher can be rounded over, and then glued and doweled between the two inside legs. At each juncture the top dowel is left long, and the bottom dowel is cut off and sanded flush.

This entire inner leg assembly can now be mounted between the slide assemblies, Fig. 10. To do this, mount one slide assembly (screws only, no glue), put the leg assembly in place, and then mount the other slide assembly. Make sure the leg assembly is free to slide in the grooves, but not so loose that it twists and jams.

OUTSIDE LEGS. The top of the outside legs are fastened to the slide assembly with a kind of 'nut and bolt' arrangement, except it's made of dowels, see detail in Fig.

10. Where to glue and where not to glue is important. At the top of the leg, Fig. 11, a short (¾" long) dowel must be glued into the slide assembly first, then be free to pivot on the leg, and finally glued into the 'nut'. The nut must be glued to the end of the dowel only, but free to pivot in the counterbore. (I put some furniture wax in the counterbore before gluing the nut to the dowel. If any glue seeps out, it won't stick. Plus, the wax serves as a lubricant for the pivoting nut.)

The fastening arrangement at the middle stretcher is similar. Make sure the nut is glued to the dowel only, but free to pivot in the counterbore.

THE STAND

Of course, once we built the tray tables we had to go ahead and build a stand for them. The stand we came up with looks something like two swords stuck in a base — Excalibur fashion.

LEGS. Two half-lap joints are cut near the top of each leg for the support arms, Fig. 14. Then holes are drilled for the stretchers at the top, middle and bottom. The tenon at the bottom of these legs is cut *after* the base is made.

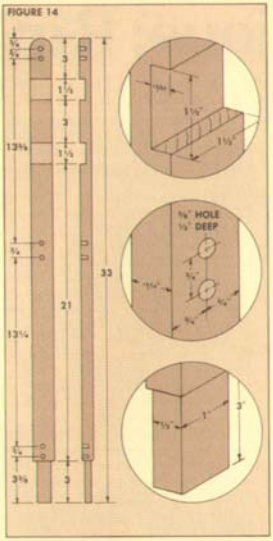
SUPPORT ARMS. There's a little trick involved in making the support arms. Start with a piece of wood 3½" wide. Then drill two 1" holes along the center line of this board as shown in Fig. 16. Also, cut a dado in the center of the piece to match the dado in the legs. Now, rip this board down the center line, producing two arms with half-circle 'hooks.' Go ahead and bandsaw the radius at the ends of the arms, and then glue the arms into the legs. Finally, round over the edges with a router (after they're attached).

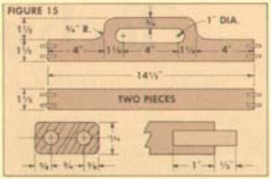
THE BASE. The base starts out as two pieces of wood 3" wide. A ¼" deep by 1" wide dado is cut in the center of each piece, Fig. 17. Then they are glued together and cut to shape on a band saw. The two dados thus form a mortise. After the base is glued up, measurements can be taken for cutting the tenon at the bottom of the legs.

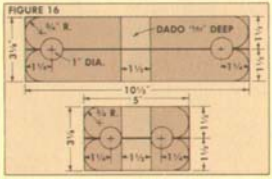
STRETCHERS. Three stretchers join the two leg assemblies. The top stretcher also serves as a carrying handle, Fig. 15. First holes are drilled for the handle and cleaned out with a sabre saw. Then the outside of the handle is cut to shape and all edges are rounded over with a router.

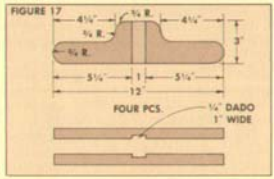
FINISHING. We used *Hopes* Tung Oil Varnish to finish both the trays and stand. This is an oil finish with just enough varnish to protect the trays. The legs and stand need only two coats (unless you want a glossy finish). The tray tops were given three coats.

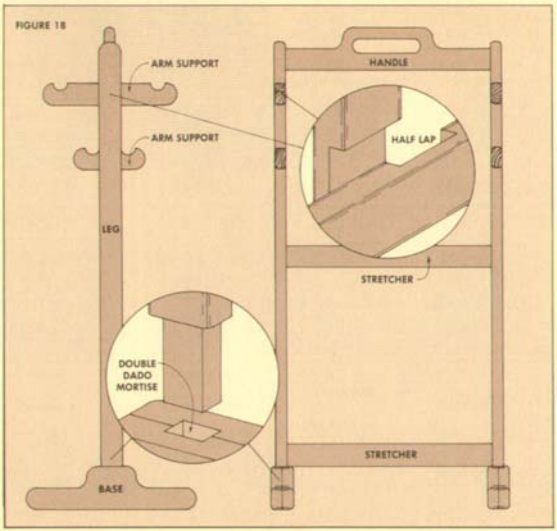
After the finish is dry, apply some car wax or a good furniture wax in the grooves in the slide assembly so the legs slide smoothly.











Technique: Rip/Bevel

HOW TO CUT A HEXAGONAL STICK FROM A SQUARE ONE

Recently we received a letter which asked in part, "I want to make some hexagonal table legs, cutting them from 4"x4" turning squares. How do I cut the square blanks to get the hexagonal shape?"

In the process of answering this question I went back to the shop to make sure the answer I thought was correct, was indeed correct. During my experimenting, I discovered that I had part of the answer correct (the rip/bevel angle is 30°), but some extra steps had to be taken to get a true hexagon — one with six *equal* sides.

Much of the mathematics used to answer this question is in *Woodsmith* No. 12, in an article on Math of Miters. Although this article dealt with the angles and miters for a frame, the same information can be applied to ripping a bevel along a square stick to yield a hexagonal one.

Since I did my experimenting with a 1½" square stick (ripped from some 2x4 scrap), the hexagonal (six-sided) shape had to fit within the confines of this square.

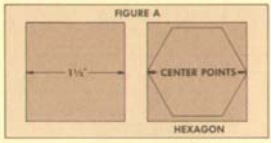
If a true hexagon is drawn within the square, only two points will touch the outside edges of the square, Fig. A. The first step then is to mark these points, which are the center points on two sides to the square stick. These two points will eventually be two points of the hexagon.

FIRST CUT. Start cutting by tilting the saw blade (arbor) to 30° (the angle necessary to cut a hexagon). On most table saws (including *Sears*) the blade (arbor) tilts to the left. On a *Rockwell* table saw, the blade tilts to the right. We're showing both ways in the drawings below.

This first cut is somewhat difficult to align. I set the fence close to where I needed it and made a trial cut. Then I moved the fence (ever so slightly, kind of sneaking up on the cut) until the blade cut exactly on the center point mark. After making the cut, it's a good idea to mark an "X" on each side just to keep things organized during succeeding cuts.

SECOND CUT. Now the stick can be turned end for end to make the next cut, leaving the fence in the same position. (Turning the stick end for end means that the end that went through the blade first, now will go through the blade last.)

THIRD AND FOURTH CUTS. Two more sides can be cut in a similar manner. When making the third cut, be sure the blade cuts exactly on the center point mark. Then turn the stick end for end and make the fourth cut.



Now you should have a stick that looks something like a hexagon, except the sides are not of equal length. In order to trim them up, you must go through some math.

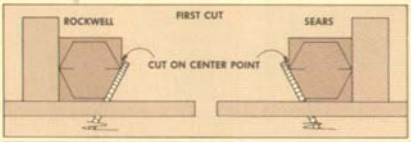
First, determine the longest diameter of the finished hexagon. (This is point to point, *not* flat side to flat side.) Since the hexagon was cut from a piece of stock 1½" square, the longest diameter will be 1½". (If the hexagon is cut from a 4"x4" square, the longest diameter would be 4", etc.)

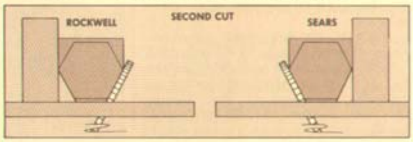
For a hexagon, the math is easy. It's simply a matter of dividing the longest diameter by 2. In our case this is 1½" divided by 2, equals ¾". Thus, each side should be ¾" long. (If the longest diameter is 4", then each side would be 2" long.)

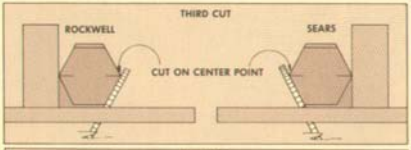
FIFTH CUT. Now back to the saw. Place the stick against the fence and move the fence over so you just barely trim off the fifth side, making it exactly ¾" long. This will automatically make the two adjacent sides ¾" long. (Again, it's best to gradually sneak up on this cut.)

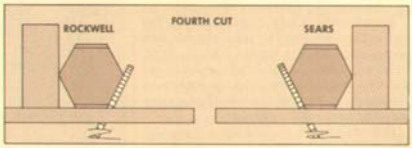
SIXTH CUT. Now, rotate the stick to trim off the final sixth side so it's ¾" long, leaving the two adjacent sides ¾" long.

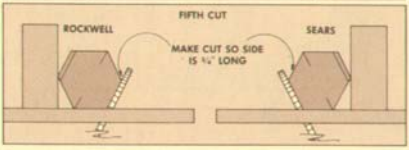
Finally, you have a perfect hexagonal stick with six equal sides. You can throw it in the scrap bin, or you can make the coin sorter shown on the next page.

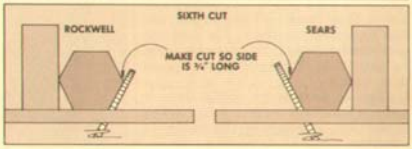












Coin Sorter

HEXAGONAL COIN COLUMNS TO STACK YOUR LOOT

I had no sooner answered one question (How do you cut a hexagon from a square?), when a new question popped up: What am I going to do with this hexagonal stick? The old wheels started to turn (a difficult task when several cogs are missing), and I came up with this coin sorter.

Actually, the idea for this coin sorter comes from those change-makers that car hops and gas station attendants used to wear back in the days when change meant something.

As your pocket fills with a pound or two of change, simply dump a handfull of change into the tray in the front of this coin sorter. The front edge of the tray is angled so it's easy to slip out one coin at a time and deposit it into the proper column.

The first step in making this coin sorter is to cut a hexagonal stick about 15" long. I trimmed some 8/4 walnut down to a 1½" square stick. Then I cut it into the hexagonal shape, see previous page.

To make the coin columns, leave the blade set at 30°. Then rip a kerf at two corners of the hexagonal stick, Fig. 1. These kerfs should be a tad over ⅝" deep.

Since the saw is already set at 30°, I adjusted the blade and the fence to make the angled cut in the coin tray, Fig. 4. This cut starts ⅛" from the front edge, and is ½" deep. (The tray shown here is made of 19/64"-thick maple.)

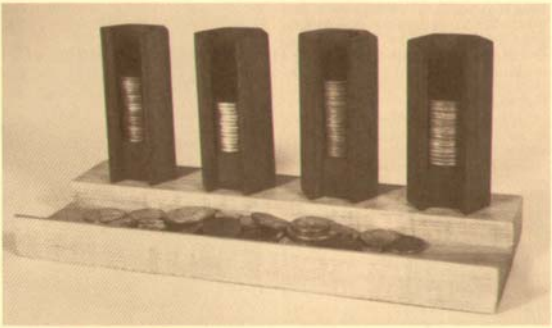
After making the initial cut, the rest of the tray is cleaned out with a straight cutter on a molding head, Fig. 5. (This makes a much smoother cut than a dado blade.)

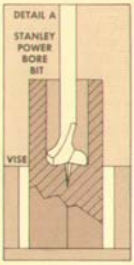
Now back to the coin columns. Switch back to a saw blade and clean out the waste between the two angled kerfs, Fig. 1. Then cut off four columns, each 3" long.

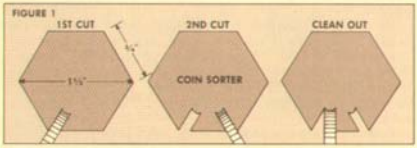
Mount each column in a vise and bore a ⅜" hole in the bottom of the column ½" deep. While the ⅜" bit is in the drill press, go ahead and drill four ⅜" holes in the coin tray, spacing them as shown in Fig. 3.

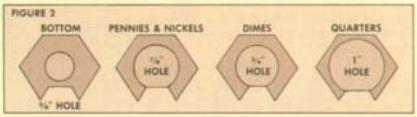
Now the holes for the coins can be drilled. This is quite a deep cut so it's important to mount each column in a vise for drilling, Detail A. The bits I used are *Stanley Power Bore* bits. As shown in Fig. 2, you need three sizes of bits for the four columns. (Sorry, no room for Susan B. Anthony silver dollars.)

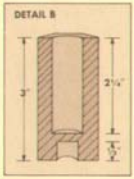
After the holes are drilled for the coins, the coin columns can be sanded smooth. Then ⅜" dowels are glued into the holes in the tray. The tops of these dowels are rounded off slightly. The coin columns are then placed (not glued) on the dowels so they can be removed to retrieve your loot.

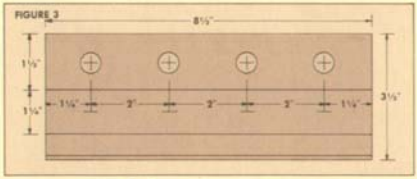


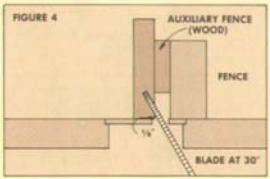


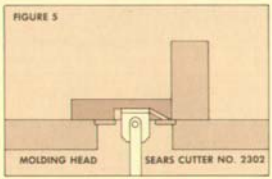












Redwood Planter

AN OCTAGONAL BOX WITH TAPERED SIDES

Dear *Woodsmith*: "I've made several redwood planters, both hexagonal and octagonal, with straight sides, Now I'm trying to make one with tapered sides, using a compound miter. Cutting one edge is no problem, but the other edge has me baffled. Can you help?"

The answer to this letter had me baffled for awhile too. The problem is compound angles. In this case, it's worse because it's really a compound taper bevel — which is enough to drive anybody to a sawdust cell. A compound angle means you're trying to cut a miter and a bevel at the same time. The result is a box with tapered sides — something like a pyramid.

During the process of figuring out how to cut the tapered/beveled sides for a redwood planter, we decided to go ahead and make one. The planter shown here has eight sides, which taper in 5° from top to bottom.

If the sides of this planter were perpendicular to the base, each side would be bevel-ripped at 22½°. To get the sides to taper, you would think you'd just leave the arbor set at 22½°, set the taper jig at 5° and make the cut. Naturally, things don't work out that way.

To make this compound angle cut, you must refer to a table of compound angles. (An abbreviated version of this table is shown below for cutting boxes with sides that slant at 5°.)

Using the table, if you want an octagonal

planter with a 5° finished taper to the sides, the arbor is set at 22¼°, and the taper jig is set at 2°. Though this small change may seem like nit-picking, it makes a difference.

To make this planter, I cut the eight sides 11½" long from a 1x6 redwood board (5½" wide). Since the sides will taper in, the top and bottom edges (the ends of the boards) will also slant at 5°. To make them horizontal on the finished planter, they must be mitered at 5° before the edges are cut, Fig. 1.

Next, a dado must be cut to accept the bottom. We used ¾" exterior plywood for the bottom and cut the ¾"-wide dado at a 5° tilt, Fig. 2.

Most redwood planters you see in stores are banded with metal. We chose to cut coves in the sides and wrap them with ¼" rope, Fig. 3. Finally, the sides can be taper/beveled as shown on the next page.

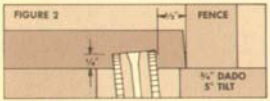
Joining the sides can be a bit clumsy unless you have eight hands. I decided to cut grooves for splined joints. This is an extra step, but it makes the planter much stronger and it's actually easier to assemble. The grooves for the splines are cut as shown in Fig. 4, leaving the arbor set at 22¼°. The ¼" plywood splines are ⅞" wide by 6" long. They're set into the grooves as shown in Fig. 5.

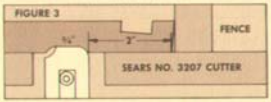
To assemble the planter, I used resorcinol glue. It comes in two parts (a powder catalyst and a liquid resin) that must be mixed. I used a total of 6 teaspoons of powder and 8 teaspoons of liquid.

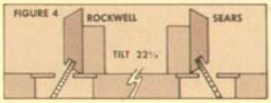
After applying the glue to the edges and splines and placing the bottom in the dado, the planter was clamped with band (web) clamps. Then the rope can be added — mostly for decoration.

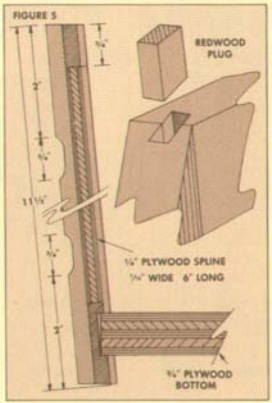
FOR 5° SLANT TO SIDES

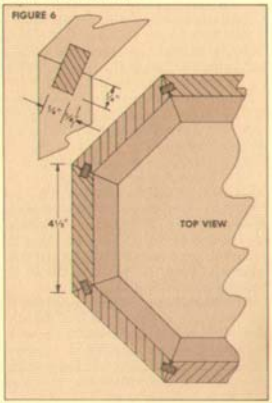
	Arbor	Taper
4 Sides	44¾°	5°
6 Sides	29¾°	2½°
8 Sides	22¼°	2°











Technique: Taper/Bevel Cut

How you go about cutting a tapered bevel (a compound angle) varies depending on the table saw you're using. The two drawings on the left show the procedure for making this cut on a *Sears* table saw (or any saw with an arbor that tilts to the left). This same procedure can be used on a *Rockwell* saw (arbor tilts to the right), but we're showing a slightly different approach on the *Rockwell* saw that makes the waste piece much smaller, and thus the finished piece is wider.

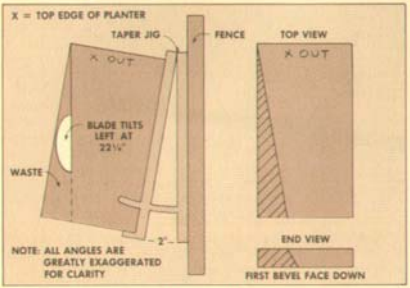
No matter which saw (procedure) you use, there are a few preliminary steps. First, the sides must be cut to length. (For the planter, this is 11½".) Then the ends of these pieces must be mitered at 5°.

To help keep things organized during the cutting, it's best to mark the inside and outside face of each piece. (I just marked them 'in' and 'out.') I also marked an "X" at the end that would eventually be the top edge of the planter.

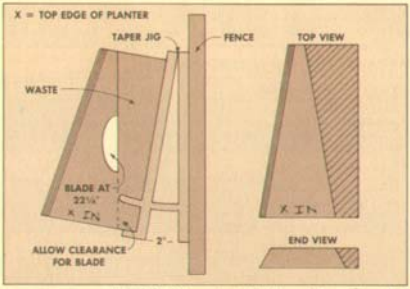
One last thing . . . it's helpful to have your Art Director handy so he can catch the waste piece and move it away from the blade while you handle the taper jig.

Note: The angles shown in these drawings are exaggerated for clarity. Also, the blade guard is not shown for clarity.

SEARS

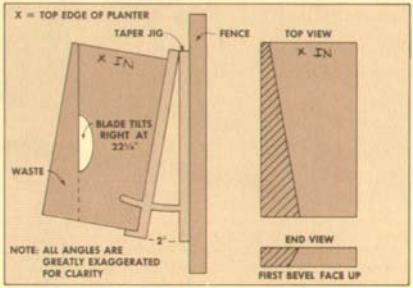


SEARS, FIRST CUT. *Set the arbor at 22½° and the taper jig at 2°. Position the workpiece so the outside face (side marked 'out') is up, and the end with the "X" (marking the eventual top of the planter) enters the blade first. The finished cut should look something like the piece shown at the right in the drawing.*

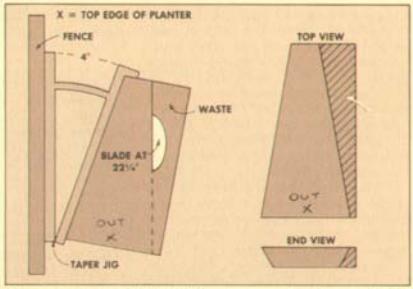


SEARS, SECOND CUT. *The tilt of the arbor (22½°) and the angle of the taper jig (2°) remain the same. The workpiece is flipped over so the inside face (side marked 'in') is up and the "X" (marking the top edge) is at the heel of the taper jig. Move the fence over so the heel of the taper jig clears the blade, but is close to it. It's best when making this cut to hold the waste piece against the taper jig with an awl or an ice pick. The finished piece is on what is normally the waste side of the cut.*

ROCKWELL



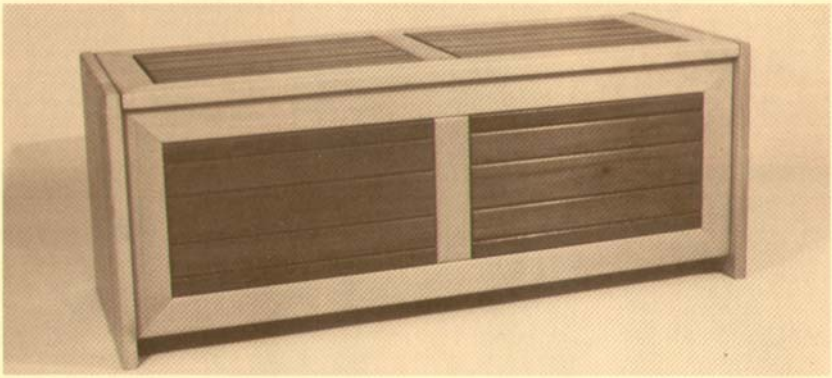
ROCKWELL, FIRST CUT. *Set the arbor at 22½° and the taper jig at 2°. Position the workpiece so the inside face (the side marked 'in') is up, and the "X" (marking the eventual top of the planter) enters the blade first. The finished cut should look something like the piece shown at the right in the drawing.*



ROCKWELL, SECOND CUT. *The tilt of the arbor remains the same (22½°), but the angle of the taper jig is doubled to 4°. The taper jig is also turned around so the heel end goes through the blade first, and the fence is moved to the left side of the blade. The workpiece is flipped over so the outside face (face marked 'out') is up, and the "X" (marking the top edge) is at the head of the taper jig. Push the workpiece firmly against the heel of the taper jig and make the cut, making sure the workpiece is always against the taper jig.*

Blanket Chest

A CONTEMPORARY APPROACH TO A TRADITIONAL FAVORITE



There's something in me that says: If everyone builds a blanket chest or hope chest in a very traditional style, I want to build a contemporary one. Sometimes this urge to be different gets me in a lot of trouble. But in this case I think it worked to an advantage.

This blanket chest certainly has a clean, contemporary look. Part of that is the result of the design. But it's also a result of the wood we used — pine and redwood. Originally we planned to build this chest out of walnut and red gum. This would have altered the 'look' enough to make it appear slightly more traditional. But we settled on pine and redwood because of the cost and also the availability of material.

All of the pine used in this chest is 5/4 (1⅛" thick actual). If we had chosen to go with 5/4 walnut, would have faced a tough battle trying to find it.

In fact, 5/4 pine is often difficult to find in a finish (or clear) grade. But, we used a grade of pine that is excellent for furniture building, readily available, and almost cheap — 5/4 pine stairtread.

Pine stairtread is 1⅛" thick, 11⅛" wide with a round (bull) nose. Some lumber yards stock it only in precut lengths for stairs. But if you ask, you should be able to get it in 8' or 12' lengths.

Note: If you decide to go with hardwood to build this blanket chest, some dimensions will have to be altered. All dimensions shown here are based on using 5/4 pine which is 1⅛" thick actual; while 5/4 hardwood is usually 1⅛" thick actual.

But why go with 5/4 pine in the first place? Why not just use ¾" or 1½"? The primary reason we chose 5/4 is because the edges (and therefore the thickness) of the wood is clearly visible. Both ¾" and 1½" wood is easily recognized, but 5/4 has more of a custom look.

THE FRAMES

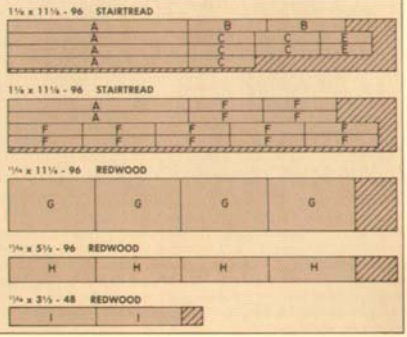
We started by building the frames. As shown in the Cutting Diagram, the initial (rough) cuts are quite easy — all pieces are 2½" wide. This includes the frame members, and the pieces for the end blocks.

First, we ripped down all the pine to 2½" wide. Then we cut it to rough length. The dimensions given in parentheses in the Materials List indicate the rough lengths.

Three frames must be built: the lid, and the front and back. Each frame consists of five pieces: the four outside frame members which are joined with mitered open mortise and tenon joints, and the center

MATERIALS LIST AND CUTTING DIAGRAM

A Frame Pieces
1⅛x2½-49 (50)
B Frame, Lid (Short)
1⅛x2½-17½ (18)
C Frame, Frnt & Back
1⅛x2½-15 (16)
D Stretcher (Lid)
1⅛x2½-14½ (16)
E Stretcher
1⅛x2½-12 (13)
F End Blocks (14 pcs.)
1⅛x2½-17½ (18)
G Panels (Frnt, Back)
11/16x10⅞-21 (22)
H Panels (Lid, 2 pcs.)
11/16x4⅞-21 (22)
I Panels (Lid, 1 pc.)
11/16x3⅞-21 (22)
J Plywood Bottom
½x14½-48



rail which is joined with a simple mortise and tenon, Fig. 1.

Once the frame members are cut to the 2½" width and rough length, a ⅜"-wide by ½"-deep groove is cut on the inside edges of all pieces, Fig. 2.

Note: The ⅜"-wide groove starts 5/16" down from the top edge. Thus it's 13/16" from the top edge of the frame to the bottom of the groove. This measurement is based on panels cut from 1" redwood. Instead of being ¾" thick actual (as with pine), redwood is usually milled to 13/16" thick.

The end pieces of the frame (the short ones) are trimmed at 45° leaving the final length (from point to point) 15" long for the front and back frames, and 17½" long for the lid frame.

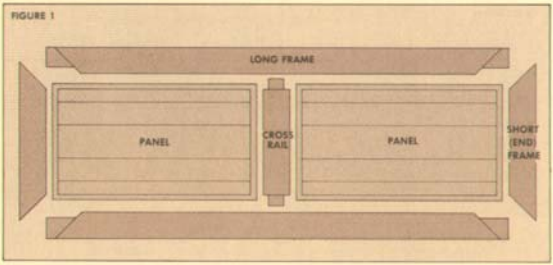
Then open mortises are cut in these pieces, Fig. 2. This mortise must stop where the groove meets the mitered end. (We cut this mortise on a radial arm saw with the tenon jig shown on page 18.)

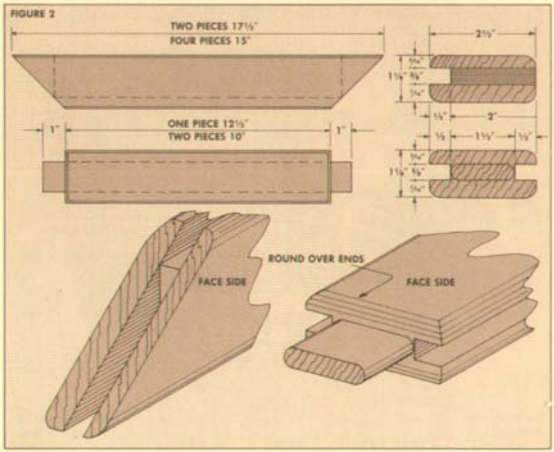
Next, tenons with mitered shoulders are cut on the long frame pieces, Fig. 3. There are six of these pieces (two for each of the three frames), and all must be cut to the same length (point to point). We left the tenons extra long because this extra length will be used to join the frames to the end blocks. (The tenons on the lid are also cut long just for convenience. They'll be trimmed flush later.)

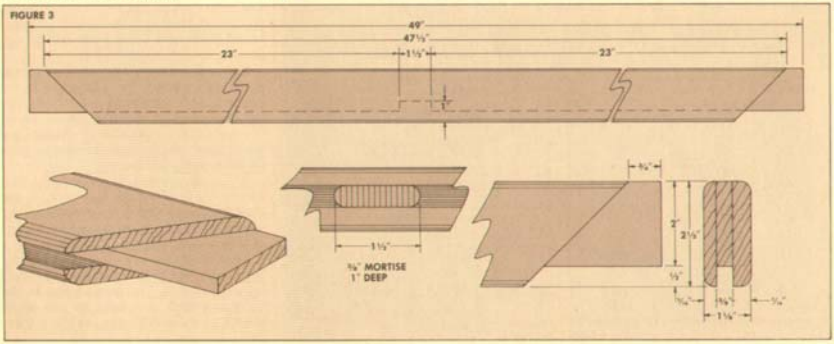
Note: A more detailed explanation of cutting this joint is given on page 16.

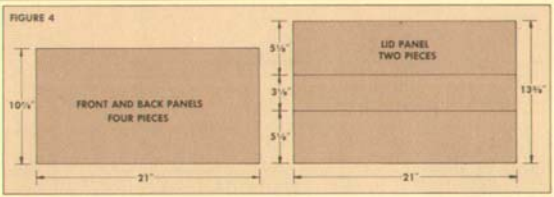
Although it's not entirely necessary, we cut mortises in these long frame pieces for the cross rails. They're easy to cut, but it is critical that they be centered on the length of the frame piece.

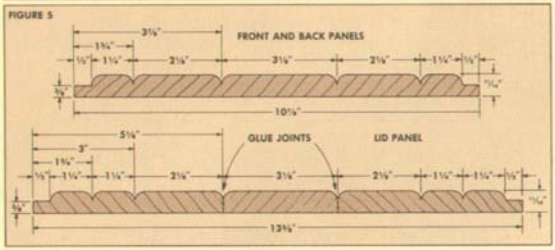
The last step is to round-over the four long edges of each frame piece. On the cross rail there are *eight*, not four, edges on each piece: four long edges, top and bottom; and four edges at the shoulders of the tenons, top and bottom.

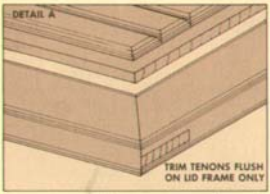


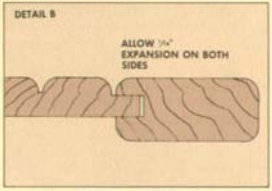


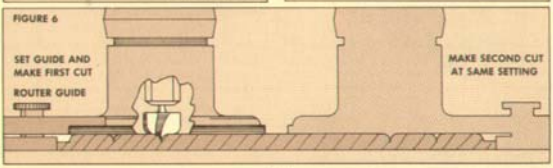


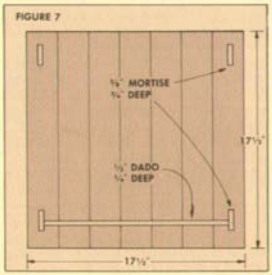


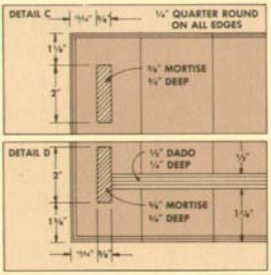












THE PANELS

The frames should be dry assembled to get the actual dimensions of the panels. The panels for the front and back can be cut from a piece of 1x12 redwood, but the panels for the lid are much too wide to be cut from one board. We ripped a 1x4 to 3⅛" and glued it between two 1x6s to get the width we needed.

When trimming the panels to size, make sure the width is ⅛" less than the groove to groove measurement. This will allow for expansion if the wood picks up moisture from the air later.

RABBETS AND BEAD GROOVES

Each of the panels is rabbeted on all four edges, and then a series of bead grooves is cut down the length of the panels.

CUTTING THE RABBETS. The first step is to cut the rabbets on all four edges of each panel. The depth of these rabbets must be adjusted to leave a tongue that fits in the grooves in the frame. For the best results, start the cuts on the ends (end grain), then cut the long edges (with the grain).

Since the panels were cut ⅛" less than the grooves to groove measurement, the rabbets, in turn, must be cut back far enough from the edge to allow this same clearance, see Detail B.

CUTTING THE BEAD GROOVES. There are four bead grooves in the front and back panels, and six in the top panel. These grooves are cut with a router and a *Sears* No. 25583 Ogee router bit. We made these cuts two ways. Since we have a router table (shown in *Woodsmith* No. 5) it was very easy to adjust the fence to make these cuts. But we also tried it with a new edge guide from *Sears*. Both ways work, but the router table is easier.

Before cutting these grooves, round over the ends (end grain) first Detail A. Then set the router to round over the outside edges where the field meets the rabbet. (We did this with the Ogee bit.) Finally, set the router to rout the first groove (closest to the outside edge).

Figure 6 shows the second groove being cut in the top panel. The edge guide on the router is set to make the cut on one side, and then, without changing the setting on the edge guide, make the cut on the other edge. Next, the guide can be reset to make the next two grooves, etc.

When the panels are complete, the frames can be glued up. However, do not glue the panels into the grooves. They should be free to move (expand/contract) as they attract or give off moisture.

After the frames are glued up, the extra long tenons can be trimmed flush on the lid frame, Detail A. The long tenons on the front and back are used to join these frames to the end blocks, so leave them long.

THE END BLOCKS

The ends of this blanket chest are solid boards glued up butcher-block fashion. Just like all the frame members, each end block is made up of 2½"-wide boards — seven for each end.

The frames must then be joined to these end blocks. The way we went about doing this is, I think, kind of clever. Since we had to cut tenons to join the frames anyway, we simply cut them a little long and used them to join the frames to the end blocks . . . two joints for the price of one.

Mortises are cut in the end blocks to accept the tenons extending from the frames. When marking out the position of the mortise, start at the top edge.

The top mortises should be 1¼" down from the top edge (this is the thickness of the lid). They're also set in so the front face of the front panel is set back ⅝", Detail C.

The measurements given in Detail D shows where the mortise should be located in relation to the bottom edge of the end block. However, this should be changed to fit the actual position of the tenons.

After marking out the position of the mortises, I drilled out most of the waste with a hand drill and a *Portalign* attachment. Then the cheeks were squared up with a chisel.

Finally, a dado is cut for the plywood bottom. This was done with a router and edge guide. After this dado is cut in the end blocks, a matching groove should be cut along the bottom edge of the front and back frames hopefully, so all four grooves line up, Detail F.

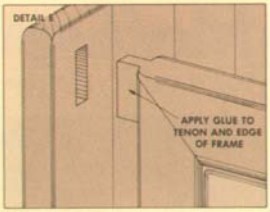
Finally, round over all edges of the end blocks with a ¼" quarter round bit.

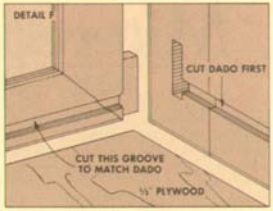
GLUING UP. When gluing up, glue can be applied to the tenons and along the edges between the tenons. This will hold the front and back frames to the end blocks.

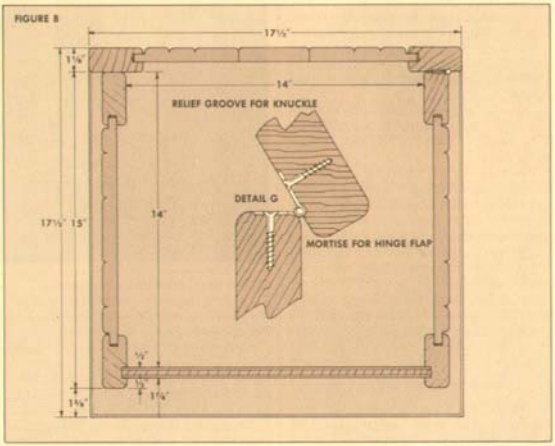
The plywood bottom should not be glued into the grooves in the frames or the dado in the end block. It must be free to move as the end block expands/contracts.

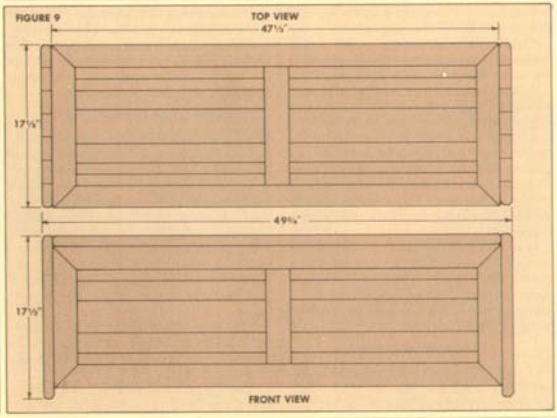
MOUNTING THE HINGES. The hinges we used on this blanket chest are *Stanley* No. CD2915-20 "Non Mortise" hinges. The name is a little misleading, because one mortise should be cut in the top edge of the back frame. Also, because of the way the lid is mounted, a small relief groove should be cut for the knuckle. Detail G in Fig. 8 shows the mortises and the knuckle groove for a typical butt hinge.

FINISHING. We finished this blanket chest with *Defthane* No. 2 Satin. We gave it two coats, rubbing with No. 000 steel wood between coats. Although sandpaper is preferable to steel wool (you have to be very careful to get up all the steel wool fragments before applying the second coat), we went ahead with steel wool so we could get in between the bead grooves.









Mitered Mortise & Tenon

ANOTHER APPROACH TO MITERED CORNERS

Mitered joints have a certain visual appeal. They don't reveal any end grain, and when used on a frame, the joint line 'points' toward the picture or panel, a nice touch.

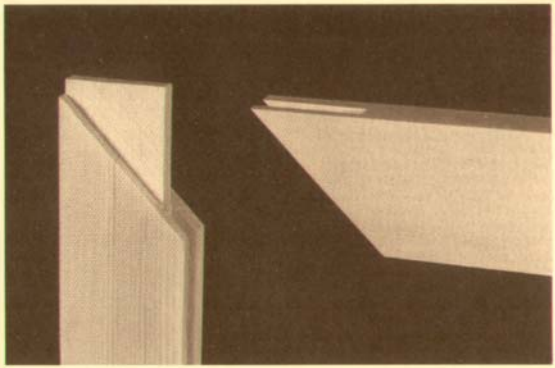
But there is a problem with a mitered joint — getting the two ends stuck together. Mitered joints can be nailed together (a poor choice, really), or doweled together (this is the usual practice).

But there is another choice that's often overlooked. A mitered joint can cut as an open mortise and tenon which is quite strong.

The only major drawback with this version is that the end grain of the tenon does show (though, I kind of like this in some applications).

The versatility of this joint should also be appreciated. When a mitered mortise and tenon is used to join a frame, it's no trouble at all to include a groove for a panel, or a rabbet for a pane of glass. Also, a decorative edge can be cut on the inside edges of the frame members before the joint is assembled.

On the next page, we've shown the step by step procedure for cutting this joint on a radial arm saw. We thought we'd show the radial arm method because it involves some practices that aren't commonly used.



CUTTING THE GROOVE

The first step is to cut the four frame members to finished width and rough length (leaving them ½" to 1" long). If you want to include a groove or rabbet, this is the first thing to cut (in all four pieces).

Although it's not necessary, it's nice if things are planned ahead so the groove is the same thickness as the open mortise.

To cut the groove on a radial arm saw, we made a special (but simple) fence about 2" higher than the surface of the table. A dado blade is mounted and adjusted to the approximate height required for the groove. The saw is turned on and the dado blade is slowly pulled into the fence to create a 'window.' The window can be widened by raising the blade and making a new pass.

Now the blade is set to the height and depth of cut needed for the groove. When making this cut, we used a feather board to push the frame member against the fence. Also, a brace is used to hold the feather board in place.

THE OPEN MORTISE

Two of the four pieces are selected to receive open mortises. The choice of which two pieces is really optional (for a door it's usually the top and bottom pieces).

The first step is to trim both ends at 45°, Fig. 2. When making these cuts, be sure the groove is always facing the fence.

Now the open mortise can be cut. If you're working on a table saw, the piece is placed in a tenon jig and the slot is cut with a dado blade. The process is very similar on a radial arm saw. We used a special mortise jig for making this cut (which is described in more detail on page 18). The jig allows you to make this slot cut in the end of the mitered frame piece with relative ease.

When making this cut, the depth of cut is critical. The bottom of the slot must meet the bottom of the groove so a corner is formed at the mitered edge, Fig. 4.

MITERED-SHOULDER TENON

Cutting the matching tenon is similar to any other mortise and tenon joint, except the shoulders of the tenon are mitered.

Rather than trying to measure or mark the thickness of the tenon with a ruler or marking gauge, I use the one thing I know is accurate: the piece I've just cut.

I simply place the first piece on the table (with the outside face up) and adjust the depth of cut by aligning the bottom of the blade with the open mortise or the groove, Fig. 5.

If the groove is off center (as we're showing in these drawings), swing the arm to the left first and cut one face of the tenon at 45°.

(You'll need an extra long table on your saw when the arm is swung to the left. Also, you'll probably want to move the fence farther back, almost to the column.)

For the second cut, swing the arm 45° to the right, keeping the depth of cut the same. Mark off the point to point distance (the maximum length of this frame member). Since this mark is on the edge away from where the blade first enters the wood, it's best to gradually sneak up on this cut.

Now the cuts must be made for the other face of the tenon. Since the tenon is off center, reset the depth of cut, repeating the procedure shown in Fig. 5, except this time the face side is down.

Swing the arm to the right to make the third cut. The critical thing on this cut is to align the shoulder line of this cut with the shoulder of the cut underneath, Fig. 6.

Now, swing the arm to the left and make the final cut. Once again, make sure the shoulder line on top and bottom line up.

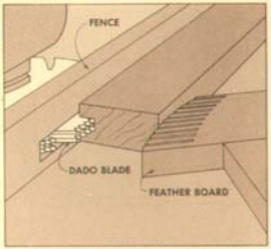
If a number of pieces are being cut, it's helpful to make all these cuts on a trial piece first. Then clamp a stop to the fence so all other pieces can be cut without marking and aligning the cuts each time.

Gluing up this joint requires some care. Pipe clamps must be set in both directions. Four clamps are needed, each one parallel with each of the four sides. Also, C-clamps should be used at each corner to hold the cheeks of the mortise against the tenon until the glue dries.

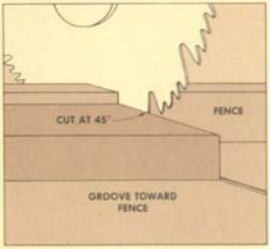
When the glue is dry, the extra stub can be trimmed off the tenon, Fig. 9, and the edge sanded smooth.

Step-By-Step

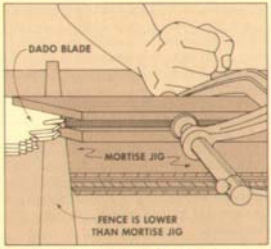
CUTTING THE JOINT ON A RADIAL ARM SAW



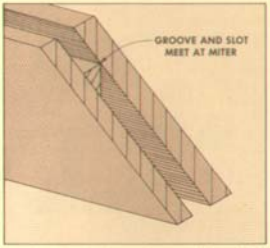
1 *To cut the groove (if needed) we made a special fence with a 'window' for the dado blade. The frame piece is pushed against the fence with a featherboard.*



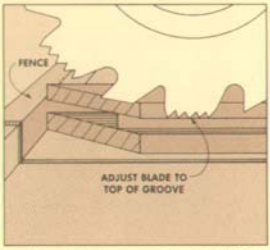
2 *Select two pieces to receive the mortise. The first step is to cut off both ends of these pieces at 45°. Be sure the groove faces the fence for these cuts.*



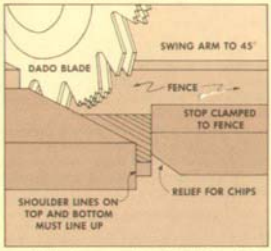
3 *To cut the open mortise, set the dado blade to height. We used a tenon jig to hold the frame piece and made successive cuts until reaching full depth of cut.*



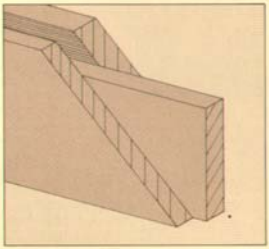
4 *On the final mortise cut, it's critical that the bottom of the mortise meets the bottom of the groove, forming a corner at the face of the mitered end.*



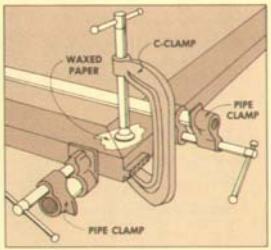
5 *To cut the tenon, set the dado blade to match the top edge of the groove or the mortise. On first pass, set the blade a little high, then adjust as needed.*



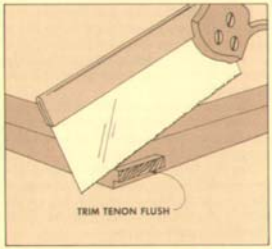
6 *Make tenon cuts on trial piece first, sneaking up on cut. Then clamp stop to fence to duplicate cuts. Make sure shoulder lines on top and bottom line up.*



7 *Finished tenon should look something like this. The tenon is longer than needed, but this extra stub will be trimmed and sanded after assembly.*



8 *To clamp, use pipe clamps, tightened alternately until joint is aligned. Place waxed paper on joint and clamp cheeks of mortise to tenon with C-clamps.*



9 *After glue is dry, cut off the tenon stub and sand smooth. The end grain of the tenon will show on this edge, so it's best to plan where you want the grain to show.*

Mortise Cutting Jig

NOW IT'S POSSIBLE ON A RADIAL ARM SAW

An open mortise is a slot cut on the end of a board. It's open on three sides to accept a tenon. This type of mortise is relatively easy to cut on a table saw with the use of a tenon jig. But on a radial arm saw it doesn't seem possible.

We decided to find a way to do it, and came up with the simple jig shown here. All it is is a piece of plywood with a fence and a handle. But it works.

To make the jig, we chose a piece of ¾" maple plywood (though Fir will work just as well). Our piece is 12" x 16" which is a comfortable size to hold almost any size workpiece.

There's only one cut involved, but it's an important one. The dado for the fence must be cut at exactly 90° to the front edge of the jig (the edge that rides along the fence). When the fence is glued in this dado, be sure it is exactly perpendicular to the surface of the jig.

Although it's not entirely necessary, the ¾" dowel handle serves as a kind of safety feature. If a handle is there, you'll automatically put your hand on it. Since the handle is 6" from the edge, it keeps your hand well away from the blade.

We also cut a 45° chamfer along the edge that rides against the fence. This is to prevent sawdust or wood chips from jamming the forward motion of the jig, or wedging it away from the fence.

CUTTING THE MORTISE

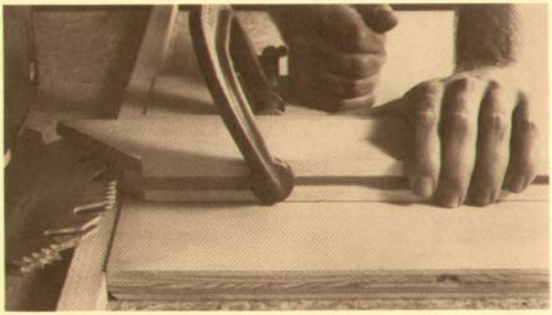
To cut the open mortise, first mount a dado set in the saw and rotate the head 90° (to the horizontal position). Pull the carriage forward until the edge of the blade is in line with the front of the fence, Fig. 2. (We use a try square to line it up.)

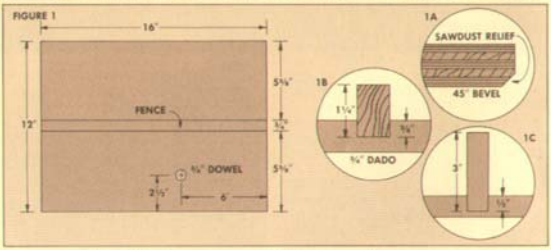
Next mark the shoulder line (depth of cut) on the workpiece. Clamp the workpiece in the jig so the end extends ½" to 1" over the front edge of the fence. (The amount of extension depends on the thickness of the cut.)

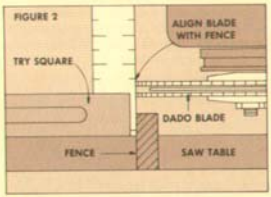
Turn on the saw and make the initial cut at this depth. Then make repeated cuts, moving the workpiece forward until it's close to the shoulder line.

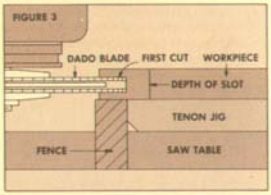
For the final cut, position the shoulder line exactly in line with the front edge of the jig, Fig. 4. As you push the jig past the dado blade, the blade should cut exactly on the marked shoulder line.

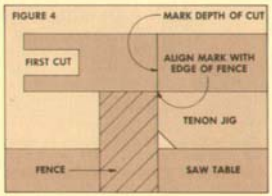
One nice thing about using this jig on a radial arm saw is that the fence (on the jig) prevents splitting out on the back edge of the mortise. That's always a problem when using a tenon jig on a table saw.

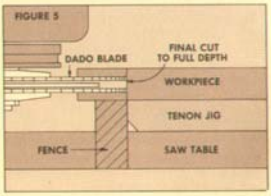












Talking Shop

AN OPEN FORUM

In the very first issue of *Woodsmith*, I set up a column called Talking Shop. This was to be an open forum for questions, comments and the exchange of ideas and information.

By the second issue, this column was dropped and the title was used in my column at the beginning of each issue. Part of the reason this column was dropped is that we didn't have many subscribers back then, so there weren't many questions or comments.

Things have changed. My question box is growing faster than I can keep up with it. So, now seems the right time to resurrect Talking Shop the way it was intended.

The purpose of this column is to be an open forum between all of us. It will be a haven for all of those Where can I find . . .? How do you make . . .? kinds of questions. And I'm very anxious to print your opinions about projects and techniques shown in *Woodsmith*. I think this kind of dialogue between all of us is important and will prove to be very helpful and informative. So, if you have any questions or comments please feel free to send them in. Thanks.

• You should have a section in *Woodsmith* for us woodworkers to ask, "Where can I find . . .?

Anyway, do you know of any place in the Midwest that has Myrtlewood for sale. The only source I can find is Woodstream Hardwoods of Knoxville, TN, but they have a 25 board-foot minimum. I appreciate any help you can offer.

Dick Hamblin
Cedar Rapids, Iowa

I have some good news and some bad news. We have started this column for answering this kind of question. But the bad news is that I don't know of a source in the Midwest for small amounts of Myrtlewood.

If anyone out there does know of such a source, (perhaps one of you up in Washington or Oregon would know) send it in and we'll print it in this column.

• I just received my copy of *Woodsmith* Number Fifteen in which you show the plans for making the Contemporary Oak Table using red oak.

I am having trouble finding 5/4 red oak in a 36" length, and I'm wondering where you were able to find it.

A. H. Sturgess
Kankakee, IL

We buy all of our hardwood lumber from Frank Paxton Lumber here in Des Moines. But whenever we run a project we try to make sure the wood is available from at least one mail-order source.

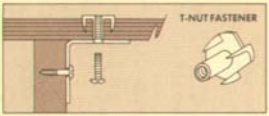
One such source for 5/4 red oak in 36" lengths is: John Harra Wood & Supply Co., *Dept. W-16, 39 West 19th Street, New York, NY 10011, Tel: (212) 741-0290. Send $1 for their catalog. Harra carries a wide assortment of domestic and imported woods in lengths up to 72", widths up to 10" and thickness up to 8/4.*

• In *Woodsmith* Number Fifteen in the article of the Contemporary Chairs: You show the method of fastening the chair seat to the front rail with a double nut assembly (Page 11, Figure 12).

It seems that a T-nut could take the place of the bolt and three washers and two nuts you show. Also there would be no need for counterboring.

Raymond W. Scott

Your suggestion of a T-nut is an excellent one. I wish I had thought of it.



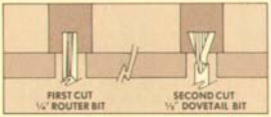
To be completely honest, we didn't use the assembly as shown in that issue. We had some rosan inserts (also known as thread inserts), and used them. But when it came time to writing the article, I thought it might be difficult to find rosan inserts so we changed the drawing to show an alternative method.

• In the Lap Desk shown in *Woodsmith* Number Nine you show how to cut a dovetail groove and tongue to join the end board to the desk lid. Can you cut a dovetail groove in one pass without burning? With other bits you usually take small cuts until you reach your depth, but this doesn't seem possible with a dovetail bit.

Joe Cooper
West Seneca, NY

In the case of making the dovetail groove for the end board for Lap Desk, yes it's okay to make the cut in one pass at full depth. A ½" bit really isn't taking out that much wood, and in the case of the Lap Desk the cut was made in pine. There should be no problem.

However, if you had to make a dovetail groove with a ½" dovetail bit in hardwood



you would probably run into problems. In this case, make a clean-out cut with a ½" straight bit (see drawing). Then switch to a dovetail bit and finish the groove in one pass. The easiest way to do this is on a router table.

• I just received all the back issues of *Woodsmith*. In Number Six you show a Spice Box with porcelain knobs that are held in place from the inside of the drawer with machine screws. I have been looking for porcelain knobs of this kind for quite awhile but can't find a source.

Joseph A. Roman
West Suffield, CT

I purchased those knobs at a local hardware store, but they're also available from: The Woodworkers Store Catalog, *Dept. W-16, 21801 Industrial Blvd., Rogers, MN 55374. Send $1 for their catalog.*

The Woodworker's Store carries a wide variety of furniture hardware, specialty hinges and fixtures, and table hardware.

• Re: your Shop Storage Box (*Woodsmith* Number Fifteen). If you really want to get fancy make the drawer fronts out of all different kinds of woods. It would serve as an instant wood identification chart.

Robert Xoester
Lakeville, IN

We must be on the same wave length. I was going to mention this in the article, but it slipped my mind as I was writing it. What I originally had in mind was to make each row of a different wood with each box stained or finished in a different way.

If the same stain and finish is applied to the front and back of the drawer, you could, over time, check the effect that exposure to light has on the different finishes by comparing the drawer front to the enclosed drawer back.

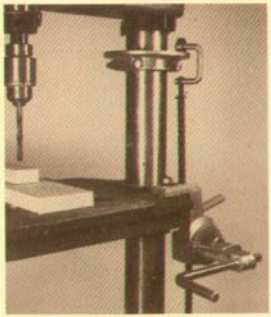
Tools of the Trade

PRESSMATE DRILL PRESS TABLE ELEVATOR

The table on a drill press is excellent for two things: spraining your back when you try to lift it, and smashing your toe when you drop it. Until now there hasn't been anything to help adjust the height of the table without a whole lot of effort.

Apparently Wallace (Wally) Abbs out in Athol, Idaho had the same thoughts, because he invented, and is now manufacturing, the *PressMate*. The *PressMate* consists of a bracket bolted to the drill press table. A chain is attached to the top of the drill press column and runs through a ratchet and clutch assembly in the bracket. The table is raised and lowered by turning a handle. (It really takes all the fun out of doing it with your back.)

I've had one on my drill press for about four months, and it does what it's supposed to do . . . with ease. It's a heavy-duty, quality-made attachment for either home shop or industrial use.



There are actually four models of the *PressMate*, one of which will fit almost every drill press ever made.

Now that you're all psyched up to buy one of these things, I should mention that it's a tad on the expensive side. National Marketing & Manufacturing (Wally's company) sold the *PressMate* for $69.95, plus $5 for shipping. (This price will rise to $79.95 on Sept. 1, 1981.) The Drill Press Table Elevator is currently being sold by the Portalign Tool Corporation in California.

If you want to buy one (or if you just want more information), contact: Portalign Tool Corp., P.O. Box 80547, San Diego, California 92138, (619) 297-7750. Be sure to tell them the make and model of your drill press, and the column diameter.

BACK ISSUES

Following is a list of the contents of back issues of *Woodsmith*. Back issues are available for $2 each.

Number One: Trestle Table, Contemporary Double-Duty Tables, Tie Rack, Cookie Cooling Rack, Cutting Board, Finger Clamps, Drill Press Guides, Taper Jig, Carpenter's Triangle.

Number Two: Contemporary Chairs, Table Saw Techniques: Box Joint and Stopped Dado, Hanging Lamp, Raised-Panel Door, Technique: Mitered Half-Lap, Shaker Peg Rack.

Number Three: Canvas and Redwood Deck Chair, Redwood Garden Bench, Deck Squares, Redwood Plant Tub, Cedar Plant Pillars, Hanging Planter, Tips For Outdoor Furniture, Nine Variations On Planter Boxes.

Number Four: Roll-Top Bread Box, Three Angle Drilling Jigs, Shop Stool, Lazy Sam Tool Storage, Box Of Drawers, Box Building Basics, A Case For Storing Router And Bits.

Number Five: Exclusive Plans For A Router Table, Make Your Own Tools: Wedge Clamps, Taper Jig, Bow Saw, Drawing An Ellipse, Oval Frame, Toy Train and Race Car.

Number Six: Music Box, Cookbook/Recipe Shelf, Candle Sconce, Spice Box, Joinery Techniques: Rabbet and Groove Joint, Three Resawing Jigs, Wooden Christmas Ornaments, Christmas Display Tree.

Number Seven: Book/Magazine Case, File Cabinet, Miter and Spline Joinery, Router Table Techniques, Book Rack, Looseleaf Binder, Waste Basket, Tips & Techniques.

Number Eight: Joinery: Mortise & Tenon, Frame and Panel Construction, Wall-Hung Cabinet, Frame and Panel Contemporary Cabinet, Panel Cutting Techniques.

Number Nine: Projects With Wooden Hinges: Adjustable Light Bracket, Jewelry Box, Lap Desk, Sweater Chest, Display Case; Joinery: Locked Miter, Joinery: End Boards, Joinery: Parallel Spline, Tips & Techniques.

Number Ten: Projects From Scrap Wood: Desk Clock, Vanity Mirror, Coin Tray, Belt Buckle, Knife Holders, Letter Opener, Recipe Box; Joinery Techniques: Rabbet/Dado Joint, Gluing-Up Laminations; Tools of the Trade.

Number Eleven: Shaker Design: Side Table, Candle Stand, Drop-Leaf Table; Technique: Drop Leaf Joint, Mounting Hinges; Mathematics of Tapering a Leg; Circle Sanding Jig.

Number Twelve: Slant-Top Writing Desk, Octagonal Clock Frame, Round Mirror, Cutting Twin Tenons By Hand, Horizontal Boring Jig, Mathematics of Miters, Adjustable Miter Jig, Cove Cutting On A Table Saw.

Number Thirteen: Contemporary Hutch/Cabinet, Step By Step To Building Glazed Doors, Mortise and Tenon With Concealed Rabbet, Roll-Around Shop Cart, Routed Jewelry Box, Glass Cutting Techniques.

Number Fourteen: Pembroke Table, Butler's Tray Table, Drawing An Elipse, Mounting Drop-Leaf Hinges, How To Sharpen A Scraper Blade, Turned Canister, Finishing Techniques, How To Mount Butler's Table Hinges. Tools of the Trade: *Rockwell* Sander.

Number Fifteen: Contemporary Oak Table, Contemporary Oak Chairs, How To Build A Table Top, Joinery: Wedged Mortise and Tenon, End Grain Box Top, Shop Storage Box Of Drawers, Technique: Cutting Small Pieces.

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